NEWPORT NIKE MISSILE BATTERY D-57/58,
INTEGRATED FIRE CONTROL AREA
Newport Road
Carleton
Monroe County
Michigan

HAER No. MI-80-1

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Northeast Region
Philadelphia Support Office
U.S. Custom House
200 Chestnut Street
Philadelphia, P.A. 19106

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HISTORIC AMERICAN ENGINEERING RECORD

NEWPORT NIKE MISSILE BATTERY D-57/58,

INTEGRATED FIRE CONTROL AREA HAER NO. MI-80-1

Location: Newport Road
Carleton
Monroe County
Michigan
UTM:Center of Newport NIKE Missile Battery D-57/58:
17.304000.4653460
USGS Quadrangle: Flat Rock, Michigan, 1 : 24,000

Date of Construction: 1954 (temporary facility) 1956 (permanent facility)

Engineer: United States Army Corps of Engineers with Contractors

Architect: United States Army Corps of Engineers with Contractors

Present Owner: Mr. Wellington Loh, Palos Verde Estates, CA
Department of Defense, 800 Newport Road, Carleton, MI 48161

Present Use: The East Control Area is currently vacant. The grounds of the West Control Area are currently used by the Michigan National Guard for vehicle storage.

Significance: The Newport NIKE Missile Battery D-57/58 Integrated Fire Control Area contributes to the significance of the NIKE Missile Battery. It was in this area that the radar systems used to identify and track targets, and direct the flight of NIKE Missile systems were located. The radar systems of the NIKE Missile batteries were important components of the total NIKE system. The Integrated Fire Control Area of NIKE Missile Battery D-57/58 is an intact, physical manifestation of American military history and had an important role in the development of American civil air defense.

Project Information: This mitigative document was undertaken in 1994 in accordance with Stipulation 1(A)(2) of the Memorandum of Agreement between the Michigan State Historic Preservation Office, the Advisory Council on Historic Preservation, and the Departmment of the Army, Corps of Engineers Detroit District. The structures associated with the Newport NIKE Missile Battery D-57/58 Integrated Fire Control Areaare scheduled for demolition.

Dr. John D. Richards, Principal Investigator; Patricia B. Richards, Ann Kowenstrot and Robert Watson, Project Archivists with Great Lakes Archaeological Research Center, Inc.; Eric Oxendorf, Project Photographer.

NIKE BATTERY D-57/58 BUILDING DESCRIPTIONS - INTEGRATED FIRE CONTROL AREA

General Description

The Integrated Fire Control Area of the Newport NIKE Missile Battery D-57/58 contained radar facilities and buildings which housed the necessary equipment to operate the radars. Most NIKE bases only had three missile launch silos, and a single radar group was sufficient for the operation of the battery, but since the Newport NIKE base was a dual battery with six silos, additional radar facilities were necessary. Therefore, the Integrated Fire Control Area of the Newport NIKE base consisted of two separate radar areas. Subsequently, for the purposes of this HAER, the Integrated Fire Control Areas were delineated as the East Control Area and the West Control Area.

The entire Integrated Fire Control Area encompasses approximately 18.75 acres enclosed within a chain link fence. The topography of the Integrated Fire Control Area is relatively flat. Locations of radar towers appear to have been built up so the towers are higher relative to the surrounding topography. This additional elevation aided in the control of the radars. All of the buildings within the East Control Area are presently structurally unsound and entrance into them to view the interior was inadvisable.

The East Control Area, presently owned by Wellington Loh, Jr., consists of four structures: the remains of a missile tracking radar (MTR) tower, a target tracking radar (TTR) tower; an acquisition radar (ACQR) tower; and a generator building. When in operation, the East Control Area also consisted of an interconnecting corridor building and associated control vans/trailers which are no longer at the site. The facilities present at the East Control Area when it was in operation were representative of those found at a typical Battery Control Area.

The West Control Area is presently owned by the Department of Defense, and leased by the Michigan National Guard. Remaining buildings at the West Control Area include: four radar towers— MTR, TTR, ACQR, and a low-power acquisition radar (LOPAR); an interconnecting corridor building; a generator building; an electronic/generator building; the HIPAR building; and a guard shack. The elevated concrete radar pad on which the HIPAR tower stood is currently present in the West Control Area, but is not included as part of this documentation as it falls outside the juristiction of the present project.

Major changes were made in the West Control Area when the Improved NIKE-Hercules System was introduced in 1960 at the Newport NIKE base. The most noticable of these changes were the additions of the LOPAR and the HIPAR, the electronic/generator building, and the HIPAR building. All of the structures within and connecting the East and West Control Areas are assessible to each other by concrete walkways and roads. Concrete pads on either side of the interconnecting corridor building in the West Control Area, and at the site of the interconnecting corridor building in the East Control Area were utilized as hardstands for radar control trailers.

East Control Area

The East Control Area is located at the eastern edge of the Newport NIKE Missile Battery D-57/58 Integrated Fire Control Area, and consists of a generator building, and three radar towers: an

acquisition radar and two tracking radars. The acquisition radar was used to record information on range, direction and azimuth of incoming enemy aircraft. Using this information, the target tracking radar located the aircraft and locked on to it. After the missile has been fired at a particular target, the missile tracking radar locked onto it and sent electrical impulses to it in order to guide its flight.[1]

Generator Building

The East Control Area generator building contained the necessary equipment used to supply electricity to the radar units. The generator also housed frequency changers required to convert commercial 60-cycle power to 400-cycle power required by the radars.[2] The generator building is a small rectangular concrete block building, approximately 35 feet x 25 feet. It has a flat, slightly sloped roof. Entrances to the generator building are located on the north side of the building, and consist of an overhead garage-type door, and two double-door personnel entrances.

Radar Facilities

The acquisition radar tower in the East Control Area was located in the center of the three radar towers. The acquisition radar was a continuous sweep radar mounted on a twenty foot high triangular steel scaffolding which was anchored into the ground with poured concrete footings. The scaffolding supported a large octagonal steel platform, on top of which the radar unit was mounted. The radar platform was encircled by a steel safety rail. Located on one side of the radar deck was a twenty foot high steel conduit connecting the radar platform and the ground. This conduit housed the electric cables that linked the radar platform and the generator building, and cables that linked the radars with the radar control trailers.

The target tracking radar and the missile tracking radar were constructed similarly to each other. Tracking radar bases consisted of a pillar of poured concrete, on top of which a large octagonal steel platform was situated. The concrete bases were enclosed within twenty feet high square steel structures which provided additional support for the radar platforms. The radar dish was mounted on top of the steel platform. The radar platform was encircled by a steel safety rail. Located on one side of the radar deck was a twenty foot high steel conduit connecting the radar platform and the ground. This conduit housed the electric cables that linked the radar platform and the generator building, and cables that linked the radars with the radar control trailers. The tracking radars of East Control Area are positioned on either side of the acquisition radar.

West Control Area

The West Control Area is located at the western edge of the Newport NIKE Missile Battery D-57/58 Control Area, and consists of: a generator building; an electronic/generator building; an interconnecting corridor building; a HIPAR building; five radar towers: an acquisition radar, two tracking radars, a HIPAR, and a LOPAR; and a sentry box. The West Control Area was modified from its original layout in 1963 when the Newport base was modified to accommodate the

Improved NIKE-Hercules system. At this time, the HIPAR building and electronic/generator building were added, as were the HIPAR and LOPAR radar systems.

Generator Building

The generator building was one of the original buildings constructed in 1957 in the West Control Area. The generator building was designed to contain the necessary equipment used to supply electricity to the radar units. The generator also housed frequency changers required to convert commercial 60-cycle power to 400-cycle power required by the radars.[3] The generator building is a small rectangular concrete block building, approximately 35 feet x 25 feet. It has a flat, slightly sloped roof. A single personnel entrance to the generator building is located on the northeast side of the building. A steel fuel tank is located on this side of the building as well.

Electronic/Generator Building

The electronic/generator building was added to the West Control Area in 1963, with the conversion of the base to the Improved NIKE-Hercules system. The electronic/generator building was designed to supply the additional power required to operate the HIPAR and LOPAR radar systems. The electronic/generator building is a small rectangular concrete block building, approximately 50 feet x 25 feet. It has a flat, slightly sloped roof. The southeast side of the electronic/generator building contains three double-doored entrances which allowed access to the generators, a single personnel door, and an additional double entrance. Louvered vents are located above the generator access doors. A concrete pad and power transformer are located outside of the electronic/generator building on the northeast side of the building.

HIPAR Building

The HIPAR building was added to the West Control Area in 1963, with the conversion of the base to the NIKE-Hercules system. The HIPAR building housed the equipment that received and displayed the transmissions of the HIPAR and conventional radar systems. The HIPAR building is a concrete block building, approximately 50 x 35 feet, with a flat, slightly sloping roof. It has two entrances on its northwest side and single entrances on both the southeast and southwest elevations.

Interconnecting Corridor Building

The interconnecting corridor building was added to the West Control Area in 1963, with the conversion of the base to the Improved NIKE-Hercules system. The interconnecting corridor building was designed to house the cable equipment that connected the radar trailers to each other and to the launch area. Additionally, the interconnecting corridor building was used for storage. The interconnecting corridor building is a small, flat roofed, concrete block building, approximately 50 x 35 feet, on a concrete slab. Entrances to the interconnecting corridor building are located on the southeast side of the structure. On the northeast and northwest sides of the

buildings there are openings that lead to the radar trailers, and concrete pads on which the trailers stood.

Guard Shack

The Newport NIKE Missile Battery D-57/58 Integrated Fire Control Area contains a guard shack, or sentry box, that provided shelter to Integrated Fire Control Area guards during their duty periods. The guard shack is approximately 5 feet x 7 feet, constructed from concrete blocks on top of a concrete slab, and has a slightly sloping flat roof. The guard shack has an entrance door on one side, and windows on the remaining three sides. The Newport NIKE Missile Battery D-57/58 Integrated Fire Control Area guard shack is located near the entrance of the Control Area.

Radar Towers

The West Control Area contained four radar towers. Three of these towers were the standard acquisition and tracking radars required to operate NIKE missile batteries. In addition to these radars, the West Control Area contained HIPAR and LOPAR radars which were necessary for the operation of the Improved NIKE-Hercules system.[4]

The acquisition radar tower is located in the southeast of the West Control Area. It consists of a pillar of poured concrete, on top of which a large steel platform is mounted. This pillar is enclosed within a twenty foot high corrugated steel frame. The radar unit is mounted on top of the steel platform, and the entire unit is encircled by a steel safety rail.

The target tracking radar and the missile tracking radar are constructed similarly to each other. The tracking radar bases consist of pillars of poured concrete, on top of which large steel platforms are situated. These units are enclosed within twenty foot high square steel bases which provide additional support for the radar dishes. The radar dish was mounted on top of the steel platform. The radar platform is encircled by an octagonal catwalk and a steel safety rail. The tracking radars are positioned at the extreme southeast and northwest of the West Control Area.

The HIPAR and LOPAR radars were added to the West Control Area when the Improved NIKE-Hercules system was incorporated into the Newport battery. The HIPAR system was developed to provide a radar system capable of detecting small radar targets at long ranges and providing simultaneous coverage of all altitudes.[5]

The HIPAR consisted of a twenty foot high steel scaffolding frame which was secured to a concrete pad 3-4 feet thick. This scaffolding provided support for a circular steel radar platform. The HIPAR radar unit was a continuous sweep radar antenna which was housed within a geodesic dome. This entire unit was mounted on the steel platform. The radar platform was encircled by a steel safety rail.

The LOPAR was mounted on a twenty foot high triangular steel scaffold which is anchored into the ground with poured concrete footings. The scaffolding supports a large octagonal steel

platform, on top of which the radar unit was mounted. The radar platform is encircled by a steel safety rail. Located on one side of the radar deck is a twenty foot high steel conduit connecting the radar platform and the ground. This conduit housed the electric cables that linked the radar platform and the generator building, and cables that linked the radars with the radar control trailers.

ENDNOTES

1 Transcripts of a speech extracted and reproduced from the records of the Office of History, Headquarters, U.S. Army Corps of Engineers, Alexandria, VA 22310-3865.

2 Historic American Engineering Record, NIKE Missile Battery PR-79. HAER No. RI-37-B, p. 6.

3 Ibid.

4 *A History of Engineering and Science in the Bell System*, National Service in War and Peace (1925 - 1975), M.D. Fagan, editor, Bell Telephone Laboratories, Inc., p. 390-391.

5 Ibid.

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